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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,719	09/25/2003	Wataru Yamada	117322	6414
25944	7590	09/21/2004	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			DOTE, JANIS L	
			ART UNIT	PAPER NUMBER
			1756	

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/669,719

Applicant(s)

YAMADA ET AL.

Examiner

Janis L. Dote

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2003.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-12 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 21 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/25/03.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

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1. Drawings were received on Oct. 21, 2003. These drawings are not acceptable because they are not in compliance with 37 CFR 1.121. The top margin of each of the drawing sheets is not labeled "Replacement Sheet."

2. The disclosure is objected to because of the following informalities:

The use of trademarks, e.g., Sumilizer [sic: SUMILIZER] at page 46, lines 13-16, has been noted in this application. The trademarks should be capitalized wherever they appear and be accompanied by the generic terminology. This example is not exhaustive. Applicants should review the entire specification for compliance.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Appropriate correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3 and 4 are indefinite in the phrase "has a bonding hand with  $R^1$  in general formula (2) [claim 4: (3)]" (emphasis added), because it is not clear what is meant by the term "bonding hand," which is not defined in the instant specification, and which is not a common term in the chemical arts.

5. In the interest of compact prosecution, the examiner has interpreted the phrase "has a bonding hand with  $R^1$  in general formula" recited in instant claims 3 and 4 as meaning that the group  $R^1$  is bonded to at least one of the groups  $Ar^1$  to  $Ar^5$  in formulas (2) or (3), respectively. Rejections based on this interpretation are set forth infra.

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6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by US 2004/0086794 A1 (Yamada).

Yamada discloses an electrophotographic photoreceptor comprising a conductive support, a charge generation layer, a charge transport layer, and an uppermost layer comprising a siloxane resin that meets the compositional limitations recited in instant claims 1-4. Example 1 in paragraphs 0120-0124. The upper most layer is obtained by forming a coating solution and coating the solution on the charge transport layer. The coating solution comprises compound (VI-3), compound (III-3), the metal chelating compound aluminum trisacetylacetonate, and the multidentate ligand acetylacetone. Table 1 at page 3,

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compound (III-3); page 18, compound (VI-3); and paragraph 0124. Compound (VI-3) comprises a hydroxyl ethyl group and a triphenylamine group that meet the compositional limitations of formula (3) and formula (4), respectively, recited in instant claim 2, 4, and 5. Compound (III-3) is  $(\text{MeO})_2\text{MeSi}-(\text{CH}_2)_6-\text{MeSi}(\text{OMe})_2$ , where Me represents methyl group and the group  $\text{MeO}-$  is the hydrolytic group. Compound (III-3) meets the compositional limitations of formula (1) recited in instant claims 1, 2, and 5. Aluminum trisacetylacetonate and acetylacetone meet the metal chelating compound limitation and formula (37), respectively, recited in instant claims 7 and 9, respectively. The hydrolytic group  $\text{MeO}-$  in compound (III-3) reacts with the hydroxyl group in compound (VI-3) to form the linkage  $-\overset{|}{\text{Si}}-\text{O}-(\text{CH}_2)_2\text{-triarylamine}$  moiety of compound (VI-3). The resulting siloxane resin comprises units of  $-(\text{Me})\overset{|}{\text{Si}}-(\text{CH}_2)_6-(\text{Me})\overset{|}{\text{Si}}-$ , which meet the compositional limitations of formula (1), and units of  $-\overset{|}{\text{Si}}-\text{O}-(\text{CH}_2)_2\text{-triarylamine}$  moiety of compound (VI-3), which meet the compositional limitations of formula (2), recited in instant claim 1. Thus, the resulting siloxane meets the compositional limitations recited in instant claims 1-4. The method of making said uppermost layer disclosed by Yamada meets the steps recited in instant claims 5-10.

Yamada further discloses that the electrophotographic photoreceptor discussed above may be used as the photoreceptor in an image forming apparatus comprising a photoreceptor 1, a charging unit 2, an exposing unit 3, a developing unit 4, and a transfer device 5. Fig. 2, and paragraphs 0101-0105. Yamada also discloses that the photoreceptor may be used as the photoreceptor in a process cartridge comprising a photoreceptor 1 and a charging device 2. Paragraph 0114. Thus, Yamada's imaging forming apparatus and process cartridge both meet the apparatus components recited in instant claims 11 and 12, respectively.

8. Claims 1-6, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 2001-100447 (JP'447), as evidenced by applicants' admission at page 52, line 8, of the instant specification, identifying dibutyltin diacetate as a metal chelating compound. See the Japanese Patent Office (JPO) machine-assisted translation of JP'447 for cites.

JP'447 discloses an electrophotographic photoreceptor comprising a conductive support, a charge generation layer, a charge transport layer, and an uppermost layer comprising a siloxane resin that meets the compositional limitations recited in instant claims 1-4. Translation, example 1 in

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paragraphs 0117-0120. The uppermost layer is obtained by forming a coating solution and coating the charge transport layer with the coating solution. The coating solution comprises methyltrimethoxysilane, compound (T-1), compound (Si-1), "dibutyltin acetate [sic: dibutyltin diacetate]."

Paragraph 0039, compound (Si-1); paragraph 0041, compound (T-1); and paragraph 0120. Compound (T-1) comprises a hydroxyl methyl group and a triphenylamine group. Compound (T-1) meets the compositional limitations of formula (3) and formula (4) recited in instant claim 2, 4, and 5. Compound (Si-1) comprises a triphenylamine group comprising two  $-\text{CH}_2\text{CH}_2\text{Si}(\text{OC}_2\text{H}_5)_3$  groups para-substituted on two of the phenyl groups, where the ethoxy groups are hydrolytic groups. Compound (Si-1) meets the compositional limitations of formula (1) recited in instant claims 1, 2, and 5. The instant specification at page 52, line 8, identifies dibutyltin diacetate as a metal chelating compound. Thus, dibutyltin diacetate meets the metal chelating compound limitation recited in instant claim 6. The hydrolytic methoxy groups in methyltrimethoxysilane and the hydrolytic ethoxy groups in compound (III-3) may react with the hydroxyl group in compound (T-1) to form the linkage  $-\overset{\text{I}}{\underset{\text{I}}{\text{Si}}}-\text{O}-\text{CH}_2-\text{triphenylamine}$  moiety of compound (T-1). The resulting siloxane resin comprises units of compound (Si-1), which meets the



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compositional limitations of formula (1), and units of  $\begin{array}{c} | \\ -\text{Si}-\text{O}-\text{CH}_2- \\ | \end{array}$  triphenylamine moiety of compound (T-1), which meets the compositional limitations of formula (2), recited in instant claim 1. Thus, the resulting siloxane meets the compositional limitations recited in instant claims 1-4. The method of making said uppermost layer disclosed by JP'447 meets the steps recited in instant claims 5 and 6.

JP'447 further discloses that the electrophotographic photoreceptor discussed above may be used as the photoreceptor in an image forming apparatus comprising a photoreceptor 10, a charging unit 12, an exposing unit 11, a developing unit 14, and a transfer device 19. JP'447, Fig. 1; and translation, paragraphs 0101-0107. JP'447 also discloses that the photoreceptor may be used as the photoreceptor in a process cartridge comprising a photoreceptor, a charging device, and a cleaning unit. Paragraph 0111. Thus, JP'447's imaging forming apparatus and process cartridge both meet the apparatus components recited in instant claims 11 and 12, respectively.

9. Claims 1-7, 11, and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,479,202 B2 (Shida).

Shida discloses an electrophotographic photoreceptor comprising a conductive support, a charge generation layer, a

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charge transport layer, and an uppermost layer comprising a siloxane resin that meets the compositional limitations recited in instant claims 1-4. Preparation of Photoreceptor 1 at cols. 17 and 18. The siloxane resin is obtained by forming a coating solution and coating the charge transport layer with the coating solution. The coating solution comprises phenyltrimethoxysilane, dimethoxydimethylsilane, compound T-1, and aluminum trisacetylacetonate. Col. 5, compound T-1, and col. 18, lines 42-50. Compound (T-1) comprises a hydroxyl methyl group and a triphenylamine group that meet the compositional limitations of formula (3) and formula (4), respectively, recited in instant claim 2, 4, and 5. The aluminum trisacetylacetonate meets the metal chelating compound recited in instant claim 7. The hydrolytic methoxy groups in dimethoxydimethylsilane and in phenyltrimethoxysilane react with each other to form a siloxane resin comprising phenylsiloxane units, dimethylsiloxane units, and unreacted hydrolytic methoxy units. The siloxane resin meets the compositional limitation of the silicone compound recited in instant claims 2 and 5. The unreacted methoxy units of the siloxane resin react with the hydroxyl group in compound (T-1) to form the linkage  $\begin{array}{c} | \\ -\text{Si}-\text{O}-\text{CH}_2- \\ | \end{array}$  triphenylamine moiety of compound (T-1). Col. 2, lines 45-65, and col. 4, lines 36-8. The resulting siloxane resin comprises

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units of compound  $\begin{array}{c} | & | \\ -\text{Si}-\text{O}-\text{Si}- \\ | & | \end{array}$ , which meet the compositional limitations of formula (1), and units of  $\begin{array}{c} | \\ -\text{Si}-\text{O}-\text{CH}_2-\text{triphenylamine} \\ | \end{array}$  moiety of compound (T-1), which meet the compositional limitations of formula (2), recited in instant claim 1. Thus, the resulting siloxane meets the compositional limitations recited in instant claims 1-4. The method of making said uppermost layer disclosed by Shida meets the steps recited in instant claims 5-7.

Shida further discloses that the electrophotographic photoreceptor discussed above may be used as the photoreceptor in an image forming apparatus comprising a photoreceptor 10, a charging unit 12, an exposing unit 11, a developing unit 14, and a transfer device 19. Fig. 1, and col. 15, line 65, to col. 17, line 12. Shida also discloses that the photoreceptor may be used as the photoreceptor in a process cartridge comprising a photoreceptor and at least one of charging unit, an image exposure unit, or cleaning unit. Col. 17, lines 27-27. Thus, Shida's imaging forming apparatus and process cartridge both meet the apparatus components recited in instant claims 11 and 12, respectively.

10. Claims 1-6, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent 2000-275886 (JP'886), as evidenced by applicants' admission at page 52, line 8, of the instant specification, identifying dibutyltin diacetate as a metal chelating compound. See the JPO machine-assisted translation of JP'886 for cites.

JP'886 discloses an electrophotographic photoreceptor comprising a conductive support, a charge generation layer, a charge transport layer, and an uppermost layer comprising a siloxane resin that meets the compositional limitations recited in instant claims 1-4. Translation, example 1 in paragraphs 0116-0124. The uppermost layer is obtained by forming a coating solution and coating the charge transport layer with the coating solution. The coating solution comprises methyltrimethoxysilane, a polysiloxane resin comprising 1% of silanol groups, methylsiloxane units, and methylphenylsiloxane units, compound (T-1), and "dibutyltin acetate [sic: dibutyltin diacetate]." Paragraph 0029, compound (T-1); and paragraphs 0122-0124. Compound (T-1) comprises a hydroxyl methyl group and a triphenylamine group. Compound (T-1) meets the compositional limitations of formula (3) and formula (4) recited in instant claim 2, 4, and 5. The polysiloxane resin meets the compositional limitation of the silicone compound

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recited in instant claims 2 and 5. The hydrolytic methoxy units of methyltrimethoxysilane and the hydrolytic hydroxyl groups in the polysiloxane resin react with the hydroxyl group in compound (T-1) to form the linkage  $\text{-}\overset{\text{I}}{\underset{\text{I}}{\text{Si}}}\text{-O-CH}_2\text{-triphenylamine}$  moiety of compound (T-1). Paragraphs 0010-0011, 0021-0023, and 0026. The resulting siloxane resin comprises units of compound  $\text{-}\overset{\text{I}}{\underset{\text{I}}{\text{Si}}}\text{-O-}\overset{\text{I}}{\underset{\text{I}}{\text{Si}}}\text{-}$ , which meet the compositional limitations of formula (1), and units of  $\text{-}\overset{\text{I}}{\underset{\text{I}}{\text{Si}}}\text{-O-CH}_2\text{-triphenylamine}$  moiety of compound (T-1), which meet the compositional limitations of formula (2), recited in instant claim 1. Thus, the resulting siloxane meets the compositional limitations recited in instant claims 1-4. The method of making said uppermost layer disclosed by JP'886 meets the steps recited in instant claims 5 and 6.

JP'886 further discloses that the electrophotographic photoreceptor discussed above may be used as the photoreceptor in an image forming apparatus comprising a photoreceptor 10, a charging unit 12, an exposing unit 11, a developing unit 14, and a transfer device 19. JP'886, Fig. 1; and translation, paragraphs 0103-0110. JP'886 also discloses that the photoreceptor may be used as the photoreceptor in a process cartridge comprising a photoreceptor, a charging device, and a cleaning unit. Paragraph 0112. Thus, JP'886's imaging forming

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apparatus and process cartridge both meet the apparatus components recited in instant claims 11 and 12, respectively.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JLD  
Sep. 14, 2004

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